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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte SANGHOON LEE and CHRISTINE IRENE PODILCHUK

Appeal 2008-004780
Application 09/823,793¹
Technology Center 2600

Decided: October 19, 2009

Before JOSEPH F. RUGGIERO, ROBERT E. NAPPI, and
SCOTT R. BOALICK, *Administrative Patent Judges*.

BOALICK, *Administrative Patent Judge*.

DECISION ON APPEAL

¹ Application filed March 30, 2001. The real party in interest is Lucent Technologies, Inc.

This is an appeal under 35 U.S.C. § 134(a) from the final rejection of claims 20-25, 31-34, 36, 38, and 40-46, all the claims pending in the application. We have jurisdiction under 35 U.S.C. § 6(b).

We reverse.

STATEMENT OF THE CASE

Appellants' invention relates to providing error resilience in video data transmissions using a foveation-based error resilience algorithm.

(Spec. 1:5-7; 3:14-15.) Video images are partitioned into a higher priority foveated area and a lower priority background area, and the data signals from each area are processed with different algorithms, such as forward error correction (FEC) algorithms, based on the importance of correcting errors in the data signals. (Spec. 3:14-21; 5:7-13.)

Claim 20 is exemplary:

20. A method for partitioning a video image between a foveated area and a background area comprising the steps of:

defining a foveation point in the video image based on a focal point of an eye;

defining a foveated area in proximity to said foveation point;

extracting the first plurality of data signals from said video image representing said foveated area;

extracting a second plurality of data signals from said video image representing a background area;

encoding the extracted first plurality of data signals with a first error correction protocol to create a first encoded signal;
and

encoding the extracted second plurality of data signals with a second error correction protocol different from the first error correction protocol to create a second encoded signal,

wherein the first error correction protocol comprises a first FEC algorithm and a second error correction protocol comprises a second FEC algorithm, the first FEC algorithm being more powerful than the second FEC algorithm.

The prior art relied upon by the Examiner in rejecting the claims on appeal is:

Heinzelman	6,754,277 B1	June 22, 2004 (filed Oct. 6, 1999)
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Applicants' Admitted Prior Art ("APA") (Spec. 8: 5-13.)

Claims 20-25, 31-34, 36, 38, and 40-46 stand rejected under 35 U.S.C. § 112, first paragraph, as failing to comply with the written description requirement.

Claims 20-25, 31-34, 36, 38, 45, and 46 stand rejected under 35 U.S.C. § 102(e) as being anticipated by Heinzelman.

Claims 40-44 stand rejected under 35 U.S.C. § 103(a) as being obvious over Heinzelman and the APA.

Only those arguments actually made by Appellants have been considered in this decision. Arguments that Appellants did not make in the Brief have not been considered and are deemed to be waived. *See* 37 C.F.R. § 41.37(c)(1)(vii).

ISSUES

With respect to the written description rejection, Appellants argue that "the specification reasonably conveys to the artisan numerous techniques for defining a foveation point in a video image based on a focal point of an eye." (Br. 8.)

With respect to the anticipation rejection, Appellants argue that Heinzelman does not explicitly or inherently teach defining a foveation point or defining a foveated area in proximity to the foveation point, as claimed. (Br. 10-11.)

With respect to the obviousness rejection, Appellants argue that Heinzelman fails to teach or suggest defining a foveation point or defining a foveated area in proximity to the foveation point, and the APA fails to cure this deficiency. (Br. 12-14.) Appellants also argue that there is no motivation to modify the applied prior art and that Heinzelman teaches away from the claimed invention. (Br. 13.)

Appellants' arguments present the following issues:

Have Appellants shown that the Examiner erred in finding the claims lack written description support for defining a foveation point based on a focal point of an eye?

Have Appellants shown that the Examiner erred in finding that Heinzelman teaches or suggests defining a foveation point and defining a foveated area in proximity to the foveation point?

FINDINGS OF FACT

The record supports the following findings of fact (FF) by a preponderance of the evidence.

1. Appellants' Specification teaches that one technique for reducing the size of transmitted video image data packets "relies on the fact that the human eye is foveated. Foveation is characterized by exponentially decreasing image resolution away from the focal point of the eye resulting in being able to see the fine details only in the area of focus." (Spec. 2:2-5.) (Spec. 2:6-8.) "[D]ue to this non-uniform resolution processing of the human eye, high frequency data components can be removed from areas of lesser importance without a corresponding loss of visual quality." "This high frequency elimination provides an attendant reduction in the quantity of data needed for the transmission of a quality video image." (Spec. 2:8-10.)
2. Appellants' Specification teaches a preferred embodiment where a video image is partitioned into at least two regions and each region is processed differently at different priorities and levels of protection. (Spec. 4:21-24.) "The first region consists of a foveated image area that is defined by focusing on a region of importance in a video frame." (Spec. 5:3-4.) The foveated "image area can be determined by visually detecting a high motion activity area in an image, by viewing a desired area of the image, such as in security camera applications, or simply be determined manually by the viewer." (Spec. 5:4-7.)

3. Regarding a foveated area, the Specification teaches that :

Definition of foveated area 12 can be obtained via a local or remote pointing device, which acts to control the direction of a video camera, for example. Exemplary pointing devices can include, without limiting the invention: eye-tracking device; computer mouse; joystick; retina trackers, camera under manual or computer keyboard control. Alternatively, foveated area 12 can be automatically determined through the use of foveation filters or screen pattern filters, without the need for physical pointing devices. Figure 1a shows the resulting foveated area 12.

(Spec. 5:14-22; Fig. 1.) Regarding a foveation point, Appellants' Specification teaches that:

A foveation point 16 can be defined as a focal center of the foveated area 12. For a given foveation point 16, a maximum detectable frequency at each picture element (pixel) 18, which is a function of the eccentricity (visual angle), is obtained and converted into a local bandwidth in the discrete domain.

(Spec. 6:1-4; Fig. 1.)

4. Heinzelman describes techniques to provide error protection coding for video data that has been partitioned into motion data and texture data. (Abstract.) The motion data are more important than the texture data and are given greater error protection than the texture data. (Abstract; col. 2, ll. 8-12, 46-50; col. 3, ll. 57-62.)

PRINCIPLES OF LAW

Under the written description requirement of 35 U.S.C. § 112, the disclosure of the application relied upon must reasonably convey to the artisan that, as of the filing date of the application, the inventor had possession of the later-claimed subject matter. *Vas-Cath, Inc. v. Mahurkar*, 935 F.2d 1555, 1563 (Fed. Cir. 1991). Although "the meaning of terms, phrases, or diagrams in a disclosure is to be explained or interpreted from the vantage point of one skilled in the art, all the limitations must appear in the specification." *Lockwood v. Am. Airlines, Inc.*, 107 F.3d 1565, 1572 (Fed. Cir. 1997). The specification need not describe the claimed subject matter in exactly the same terms as used in the claims, but it must contain an equivalent description of the claimed subject matter. *Id.*

Anticipation is established when a single prior art reference discloses, expressly or under the principles of inherency, each and every limitation of the claimed invention. *Atlas Powder Co. v. IRECO Inc.*, 190 F.3d 1342, 1347 (Fed. Cir. 1999); *In re Paulsen*, 30 F.3d 1475, 1478-79 (Fed. Cir. 1994).

"Section 103 forbids issuance of a patent when 'the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains.'" *KSR Int'l Co. v. Teleflex, Inc.*, 550 U.S. 398, 406 (2007).

ANALYSIS

Appellants' arguments that the Examiner erred in rejecting claims 20-25, 31-34, 36, 38, and 40-46 are persuasive.

With respect to the written description rejection, we agree with Appellants that the Specification demonstrates that, as of the filing date of the application, the inventor had possession of the claimed feature of defining a foveation point based on a focal point of the eye. (FF 1-3.) The Specification teaches that foveation is based on the focal point of the eye (FF 1). The Specification also teaches that a foveated image area can be determined by visually detecting a high motion activity area, or by using pointing devices such as an eye tracking device, a computer mouse, or a joy stick (FF 2, 3) -- all of which are, broadly speaking, based on the focal point of an eye. Furthermore, the Specification teaches that a foveation point can be defined as the focal center of a foveated area. (FF 3.)

The Examiner found that the Specification did not describe how its methods "will determine the focal point of an eye for the foveated area 12" (Ans. 4) and that "the specification does not convey first defining the foveation point and second defining the foveated area in proximity to the foveation point" (Ans. 5). However, the claims do not recite determining the focal point of the eye for the foveated area. Instead, the claims merely recite that the foveation point is *based on* the focal point of the eye. As discussed, the Specification demonstrates possession of this claim feature. In addition, as the Examiner correctly points out in another portion of the Answer (Ans. 19-21), the method steps of defining a foveation point and a foveated area are not claimed in any particular order. Furthermore, because the Specification teaches that the foveation point can be defined as the focal

center of the foveated area (FF 3), a person of ordinary skill would recognize that the Specification demonstrates possession of the claimed feature of defining a foveated area in proximity to the foveation point.

Accordingly, we conclude that Appellants have shown that the Examiner erred in rejecting claims 20-25, 31-34, 36, 38, and 40-46 under 35 U.S.C. § 112, first paragraph, as failing to comply with the written description requirement.

With respect to the anticipation rejection, we agree with Appellants that Heinzelman does not teach defining both a foveation point and a foveated area in proximity to the foveation point, as claimed.

The Examiner found that, consistent with the Specification, the foveated area may be interpreted as an area of motion. (Ans. 6; *see* FF 2.) The Examiner also found that "[t]he point of the motion is the foveation point" (Ans. 6) and "[t]he area surrounding the detected motion point is the area. Inherently the area surrounding a motion point was determined and defined to form the motion area" (Ans. 7).

While we agree that the foveated area may be interpreted as an area of motion, we do not agree that Heinzelman teaches defining both a foveation point and a foveated area in proximity to the foveation point. Heinzelman discusses partitioning the video data into motion data and texture data (FF 4). However, Heinzelman is silent as to how this partitioning is performed. In particular, the Examiner has not shown, and we do not find, where Heinzelman teaches defining a point of motion. Further, we do not agree that it is inherent that the motion area in Heinzelman was defined by determining an area surrounding a motion point.

Accordingly, we conclude that Appellants have shown that the Examiner erred in rejecting claims 20-25, 31-34, 36, 38, 45, and 46 under 35 U.S.C. § 102(e).

We also agree with Appellants that the combination of Heinzelman and the APA does not teach or suggest defining both a foveation point and a foveated area in proximity to the foveation point, as claimed. For the reasons previously discussed, Heinzelman does not teach or suggest these limitations. The APA, which discusses error correction protocols, fails to cure this deficiency of Heinzelman.

Accordingly, we conclude that Appellants have shown that the Examiner erred in rejecting claims 40-44 under 35 U.S.C. § 103(a).

CONCLUSION

Based on the findings of facts and analysis above, we conclude that Appellants have shown that the Examiner erred in rejecting claims 20-25, 31-34, 36, 38, and 40-46.

DECISION

The rejection of claims 20-25, 31, 34, 36, 38, and 40-46 is reversed.

REVERSED

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Application 09/823,793

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